

Ms. Raji Josiam  
Remedial Project Manager  
United States Environmental Protection Agency  
1445 Ross Avenue, Suite 1200  
Dallas, Texas 75202-2733

Subject:  
Long-Term Operations and Maintenance Annual Report (Soil Remedy)  
South Cavalcade Superfund Site – Concrete Cap  
Houston, Texas

Dear Ms. Josiam:

The Amended Record of Decision (ROD) dated June 27, 1997 for the South Cavalcade Site (site) specified remedial actions to be conducted by Beazer East, Inc. (Beazer). These actions included establishing site protection by providing a barrier that would be protective of human health and the environment by removing potential exposure pathways. Beazer installed a concrete cap to comply with the Amended ROD.

The portions of the site with the concrete cap are located at 1919 and 2001 Collingsworth Street, Houston, Texas. The concrete cap consists of two areas: the Southwest Area, which is used for vehicle parking for a warehouse facility, and the Southeast Area, which is used for commercial truck parking for a trucking facility (see attached Figure 1).

The Remedial Action Work Plan (RAWP) for the site requires that an Inspection Report be submitted annually to the United States Environmental Protection Agency (USEPA). This letter serves as the Long-Term Operations and Maintenance Annual Report (report). It outlines the previous year's operation and maintenance activities, describes site conditions, presents the activities proposed for the current year, and certifies that the remedy continues to provide the ROD-required protection.

#### Site Maintenance Activities

The following current property owners and site personnel were contacted to identify and review the previous year's operation and maintenance activities, as well as the activities proposed for the current year:

Imagine the result

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ARCADIS  
2929 Briarpark Drive  
Suite 300  
Houston  
Texas 77042  
Tel 713.953.4800  
Fax 713.977.4620  
[www.arcadis-us.com](http://www.arcadis-us.com)

ENVIRONMENT

Date:  
July 9, 2013

Contact:  
Tyler Mosher

Phone:  
713.953.4871

Email:  
[Tyler.Mosher@arcadis-us.com](mailto:Tyler.Mosher@arcadis-us.com)

Our ref:  
B0039105

**ARCADIS U.S., Inc.**  
TX Engineering License # F-533

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- Palletized Trucking, Inc. — Mr. Mike King, Mr. Wayne Alexander
- American Warehouses, Inc. — Mr. Ryan Burke
- Key Environmental, Inc. — Mr. James Zubrow

Email and in-person communication with these individuals indicated that no significant changes had occurred at the site during the previous year. It was indicated that none of the site-wide routine operation and maintenance activities performed affected the performance of the concrete cap. Two road construction projects are planned in the site vicinity:

- Collingsworth Street Expansion by the City of Houston
- Hardy Toll Road Extension by the Harris County Toll Road Authority (HCTRA)

Pursuant to direction from USEPA, the City of Houston and HCTRA are to submit plans to Beazer for review and concurrence to ensure that these construction projects do not adversely affect the site remedies. No evidence of these two construction projects was observed.

#### Site Inspection and Proposed Maintenance Activities

On May 22, 2013, Tyler Mosher, P.E. of ARCADIS U.S. Inc. (ARCADIS) conducted a site visit to visually inspect the conditions of the concrete caps and to verify that the caps are performing effectively as intended. The attached Site Photograph Locations (Figure 1) and photographic log document the site conditions during this inspection. Photographs 1 through 15 show the Southwest Area, and Photographs 16 through 42 show the Southeast Area. The photographs were taken in the same general locations as during the previous inspections in order to facilitate comparisons.

The condition of the concrete cap in both the Southeast and Southwest Areas is generally good and shows no change from the previous year. Other than a couple of locations in the Southwest Area (as shown on the attached photos) and around bollards and posts, there is no significant cracking or spalling other than the cracking that typically occurs as concrete cures. It should be noted that cracking, spalling and joint separation are occurring in areas outside the cap (see Photographs 15, 35 and 37). The edges of the cap are not currently affected.

The joint systems are intact and functioning as designed. The previous Long-Term Operations and Maintenance Annual Reports indicated that a bollard location in the Southwest Area is slightly displaced and minor repairs should be considered. The previous reports also noted that locations of removed sign posts in the Southwest Area are shifting and producing gaps that may require recaulking. Previous reports also noted that cracking of the concrete in the Southeast Area is starting to advance requiring continued observation. Note that the above identified areas have not changed from the previous years and still satisfactorily perform the function of a dermal barrier.

During the inspection, the condition of the cap did not appear to visually differ from the previous years' inspections. The condition of the bollard and removed sign post areas remained unchanged, and minor repairs should still be considered (see Photographs 10 and 14).

The ARCADIS 2007 thru 2012 reports noted two cracks in the Southeast Area cap that in reviewing the site as-builts fell outside of the impacted area. The condition of these cracks remains unchanged (Photographs 29 and 30). The cracks do not impact the effectiveness of the dermal barrier, however, minor repairs consisting of caulking should be considered.

A new building was installed in August 2008 in the Southeast Area and an additional building was installed in 2009 (approximate locations shown in Figure 1). Inspection of the cap adjacent to the buildings indicated the cap was in good structural condition (see Photographs 18, 20 to 23, 39, and 42). Observable pipe cut repairs were in good condition (see Photographs 41 and 42).

On-site manholes, stormwater inlets and the below grade detention basin were inspected. These all appear in good condition with limited sediment buildup that will not impede the stormwater flow.

Considerable weed growth was noted at the site, particularly at the eastern edge and property boundary of the Southeast Area. Maintenance activities are performed to keep the weed growth under control. Water ponding on the eastern edge of the Southeast area was observed. Additional weed and debris removal should be considered to minimize the ponding and allow adequate stormwater runoff. Based on the site inspection and discussion with property owners and site personnel, a limited amount of maintenance is recommended to be conducted by the property

owners. The property owners will receive a copy of this letter to notify them of these recommendations:

- inspect and repair joints where needed
- remove weeds, inspect joints and repair as necessary
- inspect bollard and removed sign post area in Southwest Area, and repair as needed
- inspect and repair large cracks in Southeast Area

This letter certifies that the site remedy continues to provide the Amended ROD-required protection. Please contact me at 713.953.4871, if you have any questions.

Sincerely,

ARCADIS U.S., Inc.

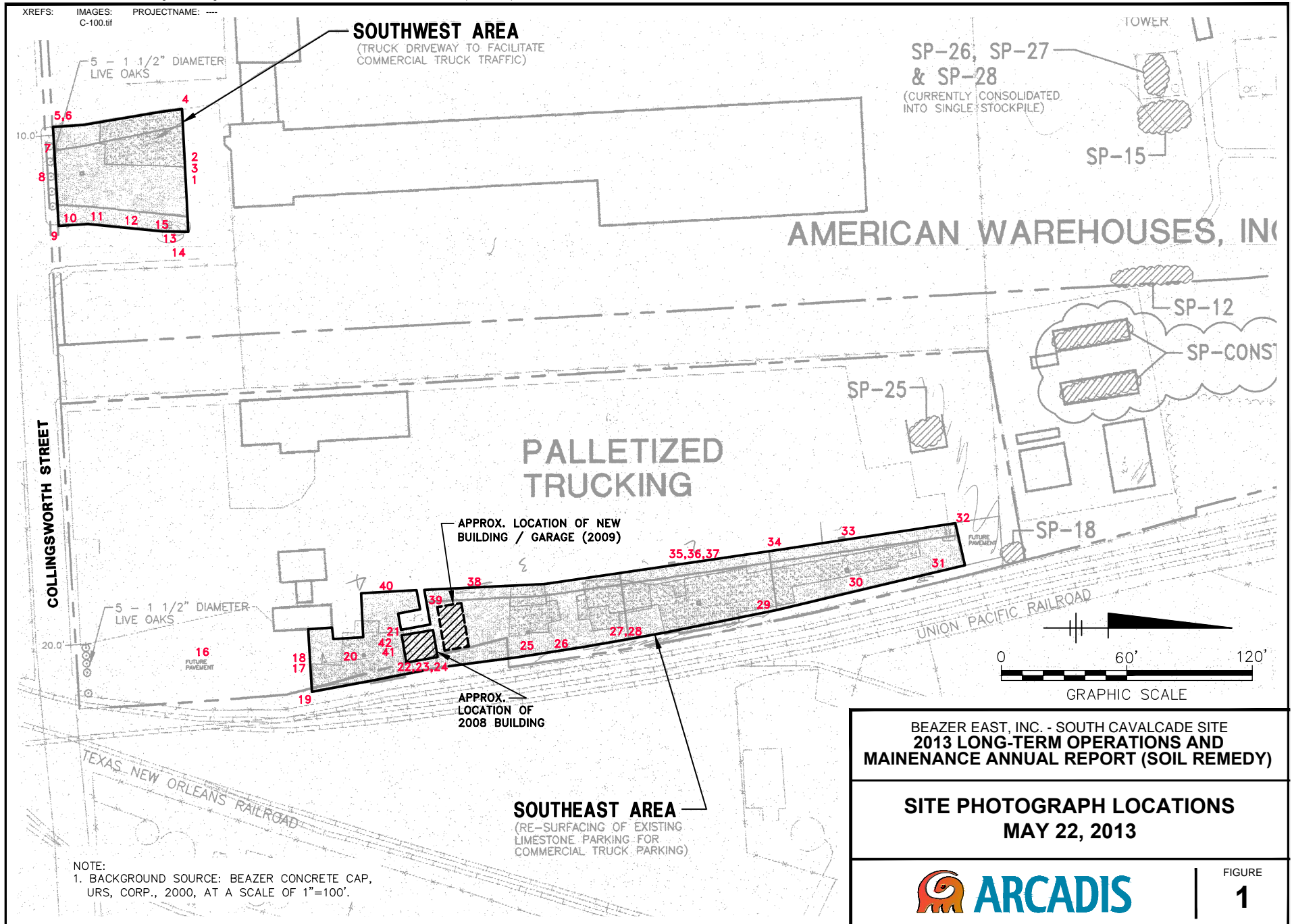


Tyler J. Mosher, P.E.  
Principal Engineer/Certified Project Manager II


Enclosures


Copies:

Marilyn Long, TCEQ  
Mike King, Palletized Trucking, Inc.  
Ryan Burke, American Warehouses, Inc.  
Mike Bollinger, Beazer East, Inc.  
James Zubrow, Key Environmental, Inc.  
Troy Hopper, ARCADIS








<b>SITE PHOTOGRAPH 1</b>	<p align="center"><b>South Cavalcade – Beazer East, Inc. Houston, Texas May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>Southeast</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>View of north edge directly along edge.</p>	


<b>SITE PHOTOGRAPH 2</b>	<p align="center"><b>South Cavalcade Site – Beazer East, Inc. Houston, Texas February 23 2012</b></p>
<p><b>Direction Photo Taken:</b></p> <p>Southwest</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>View of north edge directly along edge.</p>	




<b>SITE PHOTOGRAPH 3</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<b>Direction Photo Taken:</b>  South  <b>Description:</b>  Southwest Area  View south at north edge.	


<b>SITE PHOTOGRAPH 4</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<b>Direction Photo Taken:</b>  South  <b>Description:</b>  Southwest Area  West edge, view of manhole.	

<p><b>SITE PHOTOGRAPH</b> <b>5</b></p>	<p><b>South Cavalcade Site – Beazer East, Inc.</b> <b>Houston, Texas</b> <b>May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>West edge, view of stormwater inlet.</p>	


<p><b>SITE PHOTOGRAPH</b> <b>6</b></p>	<p><b>South Cavalcade Site – Beazer East, Inc.</b> <b>Houston, Texas</b> <b>May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>East</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>South edge of cap.</p>	





<b>SITE PHOTOGRAPH 7</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>View of construction joint.</p>	


<b>SITE PHOTOGRAPH 8</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>View of center construction joint at south edge.</p>	




<b>SITE PHOTOGRAPH 9</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>East edge, view of storm water inlet.</p>	


<b>SITE PHOTOGRAPH 10</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>North-northwest</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>View of southeast corner location of former sign posts.</p>	


<b>SITE PHOTOGRAPH 11</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>Typical cracking, same condition as previous years.</p>	


<b>SITE PHOTOGRAPH 12</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>West</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>Typical joint. Same condition as previous years.</p>	




<b>SITE PHOTOGRAPH 13</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>West</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>View of bollards and manhole. Same condition as previous years.</p>	


<b>SITE PHOTOGRAPH 14</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>West</p> <p><b>Description:</b></p> <p>Southwest Area</p> <p>View of displaced bollard. Same condition as previous years.</p>	

<b>SITE PHOTOGRAPH 15</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<b>Direction Photo Taken:</b>  South  <b>Description:</b>  Southwest Area  East edge.	


<b>SITE PHOTOGRAPH 16</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<b>Direction Photo Taken:</b>  East  <b>Description:</b>  Southeast Area  Diversion box Minor buildup in diversion box does not affect flow/function.	





<b>SITE PHOTOGRAPH 17</b>	<p align="center"><b>South Cavalcade Site – Beazer East, Inc.</b>  <b>Houston, Texas</b>  <b>May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>West</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>South end of cap.</p>	


<b>SITE PHOTOGRAPH 18</b>	<p align="center"><b>South Cavalcade Site – Beazer East, Inc.</b>  <b>Houston, Texas</b>  <b>May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>South end of cap.  View of 2008 building.  2009 building seen  behind first building.</p>	




<p><b>SITE PHOTOGRAPH 19</b></p>	<p><b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>East edge of cap and property.</p> <p>Some chipping along edge, no change in condition.</p>	


<p><b>SITE PHOTOGRAPH 20</b></p>	<p><b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>View north of MH/inlet. Some buildup in inlets, does not obstruct flow.</p>	

<b>SITE PHOTOGRAPH 21</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southeast Area.</p> <p>Between loading dock and 2008 building. Cap integrity intact.</p>	


<b>SITE PHOTOGRAPH 22</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>Southwest</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>View of 2008 building on east side of cap.</p>	





<b>SITE PHOTOGRAPH 23</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>West</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>Elevation and slope transition. Area between elevated cap, 2009 building and 2008 building. Cap integrity intact.</p>	


<b>SITE PHOTOGRAPH 24</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>East slope. 2009 building.</p>	




<p><b>SITE PHOTOGRAPH 25</b></p>	<p><b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>Northwest</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>Groundwater pump vaults at east slope.</p>	


<p><b>SITE PHOTOGRAPH 26</b></p>	<p><b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>South</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>View from groundwater pump vaults.</p>	

<b>SITE PHOTOGRAPH 27</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<b>Direction Photo Taken:</b>  South  <b>Description:</b>  Southeast Area  Center of east slope.	


<b>SITE PHOTOGRAPH 28</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<b>Direction Photo Taken:</b>  North  <b>Description:</b>  Southeast Area  Center of east slope.	





<p><b>SITE PHOTOGRAPH 29</b></p>	<p><b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>East</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>Cracks in east slope. No change in condition from previous year.</p>	


<p><b>SITE PHOTOGRAPH 30</b></p>	<p><b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>East</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>Cracks in the east slope need repair. (Same condition as previous years). Location is outside of impacted area. Other cracks along slope are starting to develop but no change observed from previous years.</p>	




<b>SITE PHOTOGRAPH 31</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>South</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>East slope at north end of cap.</p>	


<b>SITE PHOTOGRAPH 32</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>South</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>View of west edge.</p>	


<p><b>SITE PHOTOGRAPH 33</b></p>	<p><b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>South</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>Typical stormwater inlet, west cap edge.</p>	


<p><b>SITE PHOTOGRAPH 34</b></p>	<p><b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>East</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>Across cap from west edge.</p>	




<b>SITE PHOTOGRAPH 35</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>West edge of cap (Note that cracks in concrete are west of cap).</p>	

<b>SITE PHOTOGRAPH 36</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>East</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>Across cap at west edge.</p>	


<b>SITE PHOTOGRAPH 37</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<b>Direction Photo Taken:</b>  South  <b>Description:</b>  Southeast Area  West edge typical inlet.	

<b>SITE PHOTOGRAPH 38</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<b>Direction Photo Taken:</b>  South  <b>Description:</b>  Southeast Area  West edge.	



<b>SITE PHOTOGRAPH 39</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>Southeast</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>Corner of west edge of cap and loading dock.</p>	

<b>SITE PHOTOGRAPH 40</b>	<b>South Cavalcade Site – Beazer East, Inc. Houston, Texas May 22, 2013</b>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>West edge area of loading dock.</p>	

<b>SITE PHOTOGRAPH 41</b>	<p style="text-align: center;"><b>South Cavalcade Site – Beazer East, Inc.</b>  <b>Houston, Texas</b>  <b>May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>West</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>Typical joints. View of pipe cut from 2008, 2009 buildings in top of picture.</p>	

<b>SITE PHOTOGRAPH 42</b>	<p style="text-align: center;"><b>South Cavalcade Site – Beazer East, Inc.</b>  <b>Houston, Texas</b>  <b>May 22, 2013</b></p>
<p><b>Direction Photo Taken:</b></p> <p>North</p> <p><b>Description:</b></p> <p>Southeast Area</p> <p>View of pipe cut for 2008 building.</p>	